Technical Report 695

Group-Gender-Composition Factors in Sex-Role-Attitude Measurement

Joel M. Savell

Leadership and Management Technical Area

Manpower and Personnel Research Laboratory

U. S. Army

Research Institute for the Behavioral and Social Sciences

September 1985

U. S. ARMY RESEARCH INSTITUTE
FOR THE BEHAVIORAL AND SOCIAL SCIENCES

A Field Operating Agency under the Jurisdiction of the
Deputy Chief of Staff for Personnel

EDGAR M. JOHNSON
Technical Director

WM. DARRYL HENDERSON
COL, IN
Commanding

Technical review by

M.A. Fischl
S.S. Fugita

NOTICES

DISTRIBUTION: Primary distribution of this report has been made by ARI. Please address correspondence concerning distribution of reports to: U.S. Army Research Institute for the Behavioral and Social Sciences, ATTN: PERI-POT, 5001 Eisenhower Ave., Alexandria, Virginia 22333-5600.

FINAL DISPOSITION: This report may be destroyed when it is no longer needed. Please do not return it to the U.S. Army Research Institute for the Behavioral and Social Sciences.

NOTE: The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER ARI Technical Report 695	2. GOVT ACCESSION NO. AD-A172413	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) GROUP-GENDER-COMPOSITION FACTORS IN SEX-ROLE-ATTITUDE MEASUREMENT		5. TYPE OF REPORT & PERIOD COVERED Final Report Period ending Sep 1985
		6. PERFORMING ORG. REPORT NUMBER ---
7. AUTHOR(s) Joel M. Savell		8. CONTRACT OR GRANT NUMBER(s) ---
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Army Research Institute for the Behavioral and Social Sciences 5001 Eisenhower Ave., Alexandria, VA 22333-5600		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 2Q162717A767
11. CONTROLLING OFFICE NAME AND ADDRESS U.S. Army Research Institute for the Behavioral and Social Sciences 5001 Eisenhower Ave., Alexandria, VA 22333-5600		12. REPORT DATE Sep 85 13. NUMBER OF PAGES 23
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office) ---		15. SECURITY CLASS. (of this report) Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

---

18. SUPPLEMENTARY NOTES

---

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Attitude
Women in the Army
Sex-role

This report.

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

To test the effects of certain gender-related situational factors on soldier response to sex-role-attitude measures and to examine the generality of published data reporting such effects with college students, two experiments were conducted. In Experiment I (N=217) soldiers completed a sex-role-attitude scale in classrooms (about 26 soldiers in each room) in which the proportion of soldiers of the subject's own sex was either 100% or 50%. Single-sex groups were proctored by a soldier of the same sex as the subjects, while mixed-sex

(continued)

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

20. (continued)

groups were proctored in half the cases by a male and in half the cases by a female. In Experiment II (N=398), conducted 2 years later, soldiers completed the scale in classrooms (about 24 in each room) in which the proportion was 100%, 75%, 50%, or 25%. At each level, half the groups were proctored by two males and half were proctored by two females. In both experiments, egalitarianism scores were lower for males than for females (ps<.001); but in neither experiment was the subject-sex x group-composition interaction or any of the other effects significant.

Technical Report 695

Group-Gender-Composition Factors in Sex-Role-Attitude Measurement

Joel M. Savell

Leadership and Management Technical Area
William W. Haythorn, Chief

Manpower and Personnel Research Laboratory
Harold F. O'Neil, Jr., Director

U.S. ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES
5001 Eisenhower Avenue, Alexandria, Virginia 22333-5600

Office, Deputy Chief of Staff for Personnel
Department of the Army

September 1985

Army Project Number
2Q162717A767

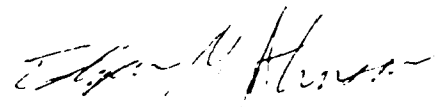
Personnel Systems and
Contemporary Problems

ARI Research Reports and Technical Reports are intended for sponsors of R&D tasks and for other research and military agencies. Any findings ready for implementation at the time of publication are presented in the last part of the Brief. Upon completion of a major phase of the task, formal recommendations for official action normally are conveyed to appropriate military agencies by briefing or Disposition Form.

FOREWORD

The Army Research Institute for the Behavioral and Social Sciences (ARI) has responded over the past years with a number of efforts to meet concerns expressed in the Office of the Deputy Chief of Staff for Personnel regarding the consequences of increasing the proportion of women in the Army and of extending the range of jobs that these women perform.

Some of these efforts are "substantive": they seek information on certain substantive matters of interest (e.g., soldier attitude on a particular topic). Other efforts are "methodological"; they seek information on the validity of the data obtained with a particular data-collection method. The research reported here is of the latter sort.



EDGAR M. JOHNSON
Technical Director

GROUP-GENDER-COMPOSITION FACTORS IN SEX-ROLE ATTITUDE MEASUREMENT

EXECUTIVE SUMMARY

Requirement:

This research tested the effects of certain gender-related situational factors on soldier response to sex-role attitude measures and examined the generality of published data reporting such effects with college students. In particular, the study attempted to provide data bearing on the question of whether male-soldier responses to surveys concerning the role of women in the Army are affected by the presence of members of the opposite sex while the questions are being responded to.

Procedure:

Two experiments were conducted. In Experiment I (N=217) male and female soldiers completed a sex-role attitude scale in classrooms (about 26 soldiers in each room) in which the proportion of soldiers of the subjects' own sex was either 100% or 50%. Half of the single-sex groups were proctored by a male, and half by a female. In Experiment II (N=398), conducted 2 years later, soldiers completed the scale in classrooms (about 24 in each room) in which the proportions were 100%, 75%, 50%, and 25%. At each level, half the groups were proctored by two males, and half were proctored by two females.

Findings:

In both experiments, sex-role-egalitarianism scores were lower for males than for females ($p < .001$ in each case); but in neither experiment was the subject-sex x group-composition interaction or any of the other effects significant.

Utilization of Findings:

For the time being--and until additional research suggests otherwise--surveys of soldier attitude on the role of women in the Army may be conducted without great concern that they will be invalidated by the kind of group-composition factors examined here.

GROUP-GENDER-COMPOSITION FACTORS IN SEX-ROLE ATTITUDE MEASUREMENT*

About 15 years ago a study was reported (Shomer & Centers, 1970) indicating that male college students respond differently to a sex-role attitude questionnaire as a function of the gender composition of the group in which the questionnaire is administered. In that experiment 214 male and female college students responded to two sets of questions, one set dealing with sex-role attitude and the other dealing with attitudes concerning various child-rearing practices, with two situational factors (sex of the other group members and sex of the proctor) systematically varied. Some groups consisted only of males, some consisted only of females, some were half-male and half-female, and some were all-male or all-female except for a single member of the opposite sex. Analysis of the data indicated, as expected, that the independent variables had affected responses to the two sets of questions differently. In the case of the sex-role attitude measures there was--in addition to the usual effect of subject sex (males less egalitarian on this topic than females)--a subject-sex x group-composition interaction: For male subjects but not female subjects, egalitarianism scores were higher in mixed-sex than in same-sex groups.[1] In the case of the child-rearing attitude measures, there were no effects at all.

---

*The author is grateful to the following persons who read and provided critical comments on an earlier draft of this paper: Mike Fischl, Steve Fugita, William Haythorn, Douglas Rachford, and Paul Twohig.

The results of that experiment raise an interesting methodological question--one that has implications concerning the validity of certain kinds of data collected by the Army as well as by the other services (and indeed by any organization that is traditionally male). The question is this: Are male-soldier responses to questions concerning the role of women in the Army affected by the physical presence of other people in the room while the questions are being responded to--either people of the respondent's own sex or people of the opposite sex?[2] Based on the results of the above study,[3] one might predict that when men respond to sex-role attitude questions in the presence of other men there is a tendency for these men to make their responses more traditional than would have been the case if they had been alone when they responded to these questions. One might also predict, based on the same results, that when men respond to such questions in the presence of women there is a tendency for these men to make their responses more egalitarian than would have been the case if they had responded to the questions alone. Each of these predictions is possible, although they are independent of each other, and neither is required by the other. Assume for the moment, however, that at least one of these predictions (or descriptions) is accurate and that the presence of at least some kinds of people--same sex, opposite sex, or possibly both--biases the responses male soldiers give to questions about sex-role attitudes. Under these circumstances, one would expect questionnaires administered in combat units, which are usually all male, to show more traditionality with regard to sex role attitude than questionnaires administered in other units, which frequently include women as well as men --not (or not necessarily) because combat soldiers are more traditional in

this regard than other soldiers but because (or at least partly because) they are filling out the questionnaires under conditions that tend to elicit sex-role traditionalism. Similarly, one would expect questionnaires administered in other (i.e., support-type) units to show more sex-role egalitarianism than questionnaires administered in combat units--again not (or not necessarily) because support-type soldiers are more egalitarian in this respect than combat soldiers but because (or at least partly because) they are filling out the questionnaires under conditions that tend to elicit sex-role egalitarianism. If this effect is real, it seems likely that such questionnaires administered to soldiers in their "natural" settings (i.e., all-male groups for combat soldiers and mixed-sex groups for other soldiers) will misread the degree to which soldiers in these groups accept or do not accept the use of women in traditionally-male roles.

The primary purpose of the experiments described here was to test the generality of the phenomenon reported by Shomer and Centers (1970) by replicating the study some ten years later in a military population.[4] A secondary purpose--if the original results could be replicated--was to enhance the specification (and thus the understanding) of the phenomenon by determining whether the effect was any stronger for individuals seated in close physical proximity to persons of the opposite sex or whether the effect was independent of physical proximity.

EXPERIMENT I

Method

At a relatively large Army post in the southern part of the United States, 51 male and 56 female soldiers in basic training (Replication 1) and 51 male and 59 female soldiers in Advanced Individual Training (Replication 2) completed a questionnaire under one of two (same-sex vs mixed-sex) group-gender-composition conditions. In each replication, subjects were first assembled at the post testing center and from there were taken to one of four rooms that were being used for the experiment.[5] In the case of the men, half were taken to a room (room 1) to which only men had been assigned, while the rest were taken to one of two rooms (rooms 2 and 3) to each of which an approximately equal number of women had also been assigned. The case of the women was exactly the reverse: Half were taken to a room (room 4) to which only women had been assigned, while half were taken to one of the two rooms (rooms 2 and 3) to each of which, as indicated above, an approximately equal number of men had also been assigned. In each replication, therefore, there were four experimental locations: one (room 1) in which the questionnaire was administered only to men, a second (room 4) in which the questionnaire was administered only to women, and two others (rooms 2 and 3) in each of which the questionnaire was administered to an approximately equal number of men and women. Each replication was thus a 2x2 (subject-sex x group-composition) between-subjects design, with subjects randomly assigned within sex to the various conditions. In the all-male group the questionnaire was administered by an enlisted man, and in the all-female group it was administered by an enlisted woman. In one of the two mixed-sex groups it was administered by an

enlisted man, and in the other it was administered by an enlisted woman.

The primary dependent variable was the score obtained on a seven-item scale (Cronbach alpha =.76)[6] that had been constructed to measure attitude concerning the role of women in the Army. Other dependent variables consisted of measures of such things as attitude regarding noncommissioned officers (NCOs).

Results

As indicated above, the variable of proctor sex was not combined factorially with the other two variables but was instead held constant (in the single-sex condition) or varied systematically (in the mixed-sex condition). The effect of this variable in the latter condition was examined by testing the proctor-sex x subject-sex interaction. In neither replication was the effect significant (both $ps > .05$), and the data from the two mixed-sex conditions were combined. In each replication, the subject's score on this scale was computed by summing his/her score on the seven items and computing the mean. The theoretical range was from 0 to 6, with higher scores indicating greater sex-role egalitarianism. In replication 1, mean scores for the men and women were 1.8 and 2.4 respectively; and the difference is statistically significant ($F=23.78$, $df=1/103$, $p<.001$). The subject-sex x group-composition interaction was not significant ($F<1$), nor were any of the other effects (all $ps>.05$). In replication 2, mean scores for the men and women were 1.7 and 2.4 respectively; and the difference is again statistically significant

(F=36.70, df=1/106, p<.001). As before, the subject-sex x group-composition interaction was not significant (F<1), nor were any of the other effects (all ps >.05). The last item in the questionnaire asked: "While filling out the questionnaire, were you sitting next to a person of the opposite sex?" (Yes/No). Analysis of the yes-no frequencies in the various conditions revealed no obvious pattern (ps >.05). The results of this first experiment thus failed to detect the phenomenon reported by Shomer and Centers (1970).

EXPERIMENT II

Method

Two years later, at the same post at which the first experiment was conducted, a second effort was made to replicate the Shomer and Centers (1970) results. Serving as subjects in the first session (Replication 1) were 100 male and 91 female soldiers taking Advanced Individual Training, and serving as subjects in the second session (Replication 2) were 102 male and 105 female soldiers who were also taking Advanced Individual Training. At each session, subjects assembled in an auditorium where they were randomly assigned by sex to experimental conditions in accordance with the requirements of a 2x4x2 between-subjects design and then taken to one of five rooms which were being used for the experiment. Independent variables were (a) sex of the subject, (b) percentage of soldiers in the subject's room who were of the subject's own sex (100%, 75%, 50%, and 25%), and (c) sex of the two proctors who administered the questionnaire in the subject's room (both male or both female). For each replication the proportion of male and female subjects in the various rooms was as follows: Room 1 (100% male),

Room 2 (75% male and 25% female), Room 3 (50% male and 50% female), Room 4 (25% male and 75% female), and Room 5 (100% female). The number of subjects in each room was approximately 20 in every case; and at each level of group-gender-composition, one of the two rooms was proctored by male proctors and the other was proctored by female proctors. Altogether there were four male and four female proctor pairs; and for the second session (Replication 2) the variable of proctor identity was systematically rotated across conditions.

Again, the primary dependent variable was the score obtained on the sex-role attitude scale, with other variables consisting of measures of such things as expressed willingness to volunteer for combat, attitude toward Army life, and plans for staying in or leaving the Army. A number of measures were included which sought to tap subjects' feelings of pressure (if any) to respond differently from the way they would ordinarily respond. For example, questions were included that asked what subjects thought about the value of surveys like the present one, the extent to which they thought subjects would respond honestly, and whether there were any questions they had considered not answering honestly. There was also a measure of social desirability. Finally, there was a question that asked: "Just now, while filling out this questionnaire, did you happen to be sitting next to someone of the opposite sex? (Yes/No).

Results

During the two years following the first experiment, the method of scoring the sex-role attitude scale was revised (primarily by dropping one of the items and by developing a set of weights to be applied to the individual

items), and scores were now able to range up to 31. The replication variable did not interact with any of the other variables in the design (all $ps > .05$), and the data for the two replications were combined. With respect to sex-role attitude, mean scores for men and women were 16.4 and 19.7 respectively, and the difference is statistically significant ($F=56.8$, $df=1/382$, $p<.001$). The subject-sex x group-composition interaction was not significant ($F<1$), nor were any of the other effects (all $ps > .05$). Examination of the other variables revealed no obvious patterns. The results of this second experiment thus failed to detect the phenomenon reported by Shomer and Centers (1970).

DISCUSSION

Why did the interesting pattern reported by Shomer and Centers (1970) fail to replicate in the experiments described here? One possibility--which is consistent with some of the discussion by the authors of that report--is that gender was not as salient a factor in these experiments as they were in the earlier one. Responses to relevant questionnaire items confirmed that subjects were at least aware of the fact that there were or were not members of the opposite sex in their rooms; but most soldiers were in uniform when they came to the sessions, and it is possible that being dressed alike and in the common uniform served to reduce the attention that subjects paid to this fact. A second possibility is that the effect observed by Shomer and Centers, while reliable at the time, is no longer reliable because of historical/societal changes that have taken place with respect to attitudes toward women. Given, however, the controversial nature of some of the topics asked about in

the questionnaire (e.g., use of women in combat roles) and the fact that male and female soldiers are generally recognized as differing on this question, it seems unlikely that historical/societal factors provide a sufficient explanation. A third possibility is that subjects in the recent experiments suffered from what Rosenberg (1965) called "evaluation apprehension" and, as a result, were rendered impervious to some of the forces usually operating in a situation of this sort. Efforts were made in the experiments to reduce the unnaturalness of what the subjects were being asked to do, but just how successful these efforts were is not known. A fourth possibility, which requires some assumptions about the different populations represented in these studies, is that the kinds of people (soldiers? non-college young people?) who took part in the recent experiments are for some reason less susceptible to group-gender-composition effects than the kinds of people (non-soldiers? college students?) who took part in the original study. This seems unlikely, but we have no data on it one way or the other. A fifth possibility focusses on the different measures of sex-role attitude used in the studies and suggests that the measures used in the recent experiments are less affected by normative considerations than the measures used in the original study. Among the items used in the recent experiments, however, are several that are similar in character to those used in the original study; and none of these items (even when examined singly) showed group-composition effects. A sixth possibility is simply that there is no effect to replicate--i.e., that the original effect was not reliable. In this connection, it should be noted a) that the effect reported

by these authors was different in pattern from the one they originally predicted and b) that the statistical significance of the reported effect was not great ($.05 > p > .01$).

Looking back over the results of these two experiments, it is difficult to avoid concluding that--at least for soldiers (or soldiers in uniform)--the effect reported by Shomer and Centers (1970) is not very reliable and, if it exists at all, is of limited scope. (We have not yet tried this experiment with soldiers in combat units although we have used soldiers who were undergoing basic training, and many of these soldiers were expecting eventually to be assigned to combat units.) For the time being--and until additional research on the topic suggests otherwise--there seems little reason to be concerned that surveys of soldier attitude regarding the role of women in the Army will be invalidated by the kind of group-composition factors discussed here.

FOOTNOTES

1. As indicated above, Shomer and Centers (1970) distinguish several kinds of mixed-sex groups (e.g., groups that are half-male/half-female and groups that are all male except for a single female) but do not provide the statistics to show that these distinctions are reliable.

2. A similar question could be asked concerning the responses from women soldiers.

3. One could of course derive such predictions theoretically (cf. Allport, 1920; Charters & Newcomb, 1958; Jones & deCharms, 1957; Gerard, 1961; Kelley, H. H., 1952, 1955; Lambert, Libman, & Poser, 1960; Merton & Rossi, 1957; Pettigrew, 1966; Ruble & Higgins, 1976; Shibutani, 1955; Strickland, Jones, & Smith, 1960; Taylor & Fiske, 1978; Zajonc, 1965).

4. The replication is not exact. As indicated in footnote 1, Shomer and Centers (1970) used several types of mixed-sex groups but were unable to demonstrate empirically that these within-mixed-sex-group distinctions were valid. What seemed important therefore (especially given the methodological focus of the present research and the presumably infrequent occurrence in the Army of some of these types) was to try to replicate the effect (single-sex/mixed-sex) that was found to be statistically reliable in the original study.

5. The soldiers arrived at the testing center in platoons, led by their platoon leader, and there were seated in an auditorium--the men on one side and the women on the other. The experimenter told the soldiers that they would be filling out a questionnaire and that he would pass out cards telling them which rooms they should go to. Previously-trained proctors then passed out pre-randomized cards with room numbers (plus additional numbers and letters,

which the soldiers were told to ignore), and the soldiers were asked to take the top card in the stack and pass the stack to the next person in the row. When all the cards had been passed out, the proctor for room 1 held up a large piece of white cardboard with a large "1" on it and asked that the soldiers going to room "1" follow him. This procedure was repeated with the other proctors. When the soldiers arrived at their rooms, the cards were collected; and later inspection of these cards indicated that all the soldiers had gone to the rooms to which they had been (randomly) assigned.

6. A copy of the scale and a report of its development (including information about the scale's psychometric properties) is available from the author. Two examples of items from the scale are as follows:

The Army's mission is best carried out:

a. by men only

b. mostly by men, with some women in support roles.

c. mostly by men, with some women in combat as well as support roles.

d. equally by men and women.

e. mostly by women.

Women don't make good bosses at work.

a. Strongly agree

b. Somewhat agree

c. No opinion at all

d. Somewhat disagree

e. Strongly disagree

REFERENCES

Allport, F. H. (1920). The influence of the group upon associations and thought. Journal of Experimental Psychology, 3, 159-182.

Charters, W. W., Jr., & Newcomb, T. M. (1958). Some attitudinal effects of experimentally increased salience of a membership group. In E. E. Maccoby, T. M. Newcomb, & E. L. Hartley (Eds.), Reading in social psychology (3rd ed., pp. 276-281). New York: Holt, Rinehart, & Winston.

Gerard, H. B. (1961). Some determinants of self-evaluation. Journal of Abnormal and Social Psychology, 62, 288-293.

Jonas, E. E., & deCharms, R. (1957). Changes in social perception as a function of the personal relevance of behavior. Sociometry, 20, 75-85.

Kelley, H. H. (1952). Two functions of reference groups. In T. M. Newcomb & E. L. Hartley (Eds.), Readings in social psychology (Rev. ed., pp. 410-414). New York: Holt, Rinehart, & Winston.

Kelley, H. H. (1955). Salience of membership and resistance to change of group-anchored attitudes. Human Relations, 8, 275-290.

Lambert, W. E., Libman, E., & Poser, E. G. (1960). The effect of increasing salience of a membership group on pain tolerance. Journal of Personality, 28, 350-357.

Merton, R. K., & Rossi, A. S. (1957). Contributions to the theory of reference group behavior. In R. K. Merton, Social theory and social structure (Rev. ed., pp. 225-280).

Pettigrew, T. F. (1966). Personality and sociocultural factors in intergroup attitudes: A cross-national comparison. In C. W. Backman & P. F. Secord (Eds.), Problems in social psychology (pp. 310-320).

Rosenberg, M. J. (1965). When dissonance fails: On eliminating evaluation apprehension from attitude measurement. Journal of Personality and Social Psychology, 1, 28-42.

Ruble, D. N., & Higgins, E. T. (1976). Effects of group sex composition on self-presentation and sex-typing. Journal of Social Issues, 32, 125-132.

Shibutani, T. (1955). Reference groups as perspectives. American Journal of Sociology, 60, 562-570.

Shomer, R. W., & Centers, R. (1970). Differences in attitudinal responses under conditions of implicitly manipulated group salience. Journal of Personality and Social Psychology, 15, 125-132.

Strickland, L. H., Jones, E. E., & Smith, W. P. (1960). Effects of group support in the evaluation of an antagonist. Journal of Abnormal and Social Psychology, 61, 73-81.

Taylor, S. E., & Fiske, S. T. (1978). Salience, attention, and attribution: Top of the head phenomena. In L. Berkowitz (Ed)., Advances in experimental social psychology (Vol. 11, pp. 250-288). New York: Academic Press.

Zajonc, R. B. (1965). Social facilitation. Science, 149, 269-274.